



# Safety Instruction

## Hazardous Waste Reduction

### General

- Cost to dispose of hazardous chemical waste may exceed the original purchase cost.
- EH&S encourages generators to reduce waste whenever possible.

### Unknowns

- Difficult to handle and very expensive to dispose of.
- Prevent by keeping good records and labeling.
- Responsible departments must make a good faith effort to identify the material.
- Responsible departments may be asked to pay for the cost of identification or classification required for disposal of unknowns.

### Flammable Organic Solvents

- Bulked in drums by EH&S and reused for off-site solvent recovery. Fairly cheap to dispose of.
- Mixing organic solvents with 'other chemicals' will make them unsuitable for solvent recovery; increasing disposal costs.
- "Other chemicals" include halogenated solvents, acutely toxic flammables, acids, bases, heavy metals, oxidizers, and pesticides.
- Collect organic solvents in manufacturer's original containers or in EH&S provided 20L blue solvent containers. EH&S provided 20L containers are the preferred method of collection.



*Non-Halogenated solvent container provided by EH&S*

### Halogenated Solvents



- Halogens include Chlorine, Fluorine, Bromine, and Iodine and halogenated solvent waste is bulked in drums by EH&S for disposal.
- Keep separate from non-halogenated organic solvents for solvent recovery.
- Flammable organic solvents mixed with halogenated solvents should be treated as halogenated solvent waste.
- Collect in manufacturer's original containers or in EH&S provided 20L white halogenated solvent containers. EH&S provided 20L containers are the preferred method of collection.

*Halogenated solvent container provided by EH&S*

### Aqueous Non-Solvent Waste

- Containers picked up are packed in drums for shipment and offsite disposal. No pumping or pouring occurs.
- May include acids, bases, fixers, or toxic/heavy metal solutions, depending on compatibility.
- Collect aqueous non-solvent waste in manufacturer's original containers or in EH&S provided flexible 'cube-tainers'. EH&S provided cube-tainers are the preferred method of collection for volumes approaching 20L or more.



*Aqueous non-solvent container provided by EH&S*

## Chemical Reuse/Recycling

- Appropriate if material is in unopened containers or partially used original containers and of high quality.
- Be careful not to obliterate labels or any parts of labels.
- Materials are made available to interested parties at OSU.
- Research chemicals should not be given or sold to the general public or offered as surplus property.
- Commercial chemical products (cleaners, lubricants) may be 'surplused' if reasonable precautions are followed; contact EH&S for details.
- Chemicals for recycling/reuse should be submitted using the EH&S [Hazardous Waste Pickup Request Form](#) and noted in the comments that materials may be suitable for reuse.
- Chemicals available for reuse may be viewed by accessing the [chemical inventory system](#).

## Neutralization

- Performed on wastes which are hazardous **ONLY** because of corrosive properties (acids, bases).
- Neutralized solution should have a final pH value between 6 and 9.
- Corrosive wastes outside those pH limits must not be discharged through the sewer system.
- EH&S may be able to provide generators with appropriate neutralization materials.

## Purchasing

- Purchase chemicals in an amount that matches anticipated future needs when possible.
- A substantial portion of chemical waste at OSU is comprised of unused chemicals in their original containers.
- Savings from purchasing chemicals in larger sizes is often offset by increased disposal costs for unused portions.
- Consider chemical shelf life when purchasing to avoid chemical expiration before use.

## Change Procedures

- Modify procedures which use hazardous substances to lessen the hazard or amount of waste products.
- A less hazardous material can sometimes be substituted in a process with comparable results.
- Example:
  - Substitute the commercial oxidizing compound NOCHROMIX in place of chromic acid in making an oxidizing acid cleaning solution.
  - Resulting mixture is still hazardous because of its corrosive properties, but is not toxic and can be neutralized.
- Reactive substances (those that react with water or air or are inherently unstable) are especially difficult and expensive to dispose of.
- Disposal costs for reactive materials like picric acid can be as much as ten times the original purchase price.
- Minimize purchases, change procedures, use entire stocks, and regularly monitor inventory of such compounds.
- A container with a small amount of residual chemical left can cost as much to dispose of as a full container. Attempt to use the last of a chemical rather than disposing of it as waste.

## Non-Hazardous Chemical Waste

- Collect solids in disposable, non-leaking containers, labeled with contents, clearly marked as non-hazardous.
- EH&S will accept any well identified non-hazardous waste for disposal or provide specific disposal instructions to the lab.
- Local limits must be followed for any drain disposal of non-hazardous waste. Consult the [wastewater disposal guidelines](#).
- If questions arise as to a specific chemical's hazard status, contact EH&S.

A brief list of non-hazardous materials can be found [here](#).



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